

**REMARKS**

Further consideration of this application courteously is solicited. By this paper, claim 1 has been canceled. Claims 4, 6, 7, 9, 13, and 16 each have been amended. Care has been taken to avoid the introduction of new matter.

The Examiner's grant of the interview on June 9, 2011 has been appreciated. The interview was very productive in narrowing the remaining issues in this application. The Examiner expressed agreement that previously pending claim 4, if placed in independent form to include all of the features of previously pending claim 1, would be allowable. The claims have been amended in accordance with the Examiner's indication,

Accordingly, claim 4 has been amended to incorporate the subject matter of claim 1 therein. Claim 1 has been canceled. Moreover, claims 7, 9, and 16 similarly have been amended to incorporate features described in former claim 4. Claims 6 and 13 have been amended to correct their dependency to claim 4 from now-canceled claim 1.

The December 21, 2010 Action, made two distinct rejections under 35 U.S.C. § 103(a) of the former claims. Specifically, claims 1, 4, 7, 12-14 and 16 were rejected as purportedly unpatentable over Masayuki, Walters, Jr., and Dahl et al. Claims 9 and 15 were rejected as allegedly unpatentable over Joebken, Dahl et al., and Iwabuchi. Both of these rejections are traversed.

The first reason for traversal is the failure of any of the art applied by the December 21, 2010 Action to disclose any of Applicant's low pressure processing systems, low processing method, or pressure control valve system (for a low pressure processing system) as now set forth in the claims. As discussed during the interview, Applicant's claimed arrangements, and Applicant's claimed method involves a gate valve, a purge gas valve, and a controller. All of these elements are shown schematically in Applicant's exemplary, preferred embodiment of Figs. 1-4. In such embodiment, controller 100 regulates purge gas valve 60 to introduce purge gas into the passages that lead to the "first purge gas supply ports" of the claims, namely ports 46, that are "beside" an annular surface of valve set 42, and the "second purge gas supply ports",

namely ports 56, that are “beside” an annular surface of valving element 41. Controller 100, purge gas valve 60, and gate valve 4 itself all cooperate to prevent the deposition of reaction of by-products near O-ring 53 on valve seat 42, and also to prevent such depositions on valving element 41. This is done by the controller’s action in opening valve 60 when gate valve 4 is open only a relatively small degree to constantly exhaust used process gases from reaction tube 1 while substrates are being processed within the tube. During this period, gate valve 4 is especially vulnerable to adhesion of reaction by-products near O-ring 53 on valve seat 42 and near valve element 41, because the valve is opened only part way such that the path of exhaust gas through the gate valve is narrow. Controller 100 and purge gas valve 60 assist gate valve 4 in maintaining its valving surfaces clear of reaction-by products by jetting purge gas through oppositely-facing ports 46 and 56. As Applicant describes in paragraphs [0034] and [0035], controller 100, purge gas valve 60, and ports 46 and 56 provide a system that jets a protective gas stream through the ports at nearly the speed of sound. As the last sentence in [0035] states, this assures maintenance of the closely fitting contact between valve seat 42 and valve cap 51.

Neither of the combinations of alleged art applied in the rejections stated in the December 21, 2010 Action teaches or suggests Applicant’s claimed arrangement for protecting the surfaces of Applicant’s gate valve seat and valving element. That is, neither the asserted combination of Masayuki, Walters, Jr., and Dahl et. al. nor the asserted combination of Joebken, Dahl et. al., and Iwabuchi discloses such an arrangement. For at least these reasons alone, independent claims 4, 7, 9, and 16 are allowable thereover.

There are still further reasons why these claims are allowable over the two asserted combination. Those center on the Dahl et. al. disclosure. Both asserted combinations rely upon Dahl et. al. However, as agreed during the interview, Dahl et. al. cannot be said to teach or suggest Applicant’s particular arrangement of both “first purge gas supply ports” and “second purge gas supply ports” (ports 46 and 56 respectively) for jetting cleansing gas over the surface of the valve seat and the surface of the valving element respectively. While Dahl et. al. were asserted as teaching “a gate valve comprising a valve element (24) with a plurality of purge gas supply ports (55) circumferentially arrayed” on page 3 of the December 21<sup>st</sup> Action, Dahl et. al.

do not make such a teaching to those of ordinary skill in the art. This is clear from the text of Dahl et. al. itself.

Reference is made to the paragraph bridging pages 2 and 3, namely in the right-hand column on page 2 to the left-hand column on page 3 of Dahl et. al.. From this passage, those of ordinary skill in the art would understand that ports 55 are liquid inlets which conduct controlled fluid, flowing from the valve's inlet 12 to its outlet 22, into passage 51 which conducts a supply of quenching liquid. In this passage bridging pages 2 and 3, Dahl et. al. explain that when ports 55 conduct the control fluid to mix into the quenching fluid flowing through passage 51, the control fluid imparts a spinning motion to the quench liquid to better disperse it as it is sprayed near orifice 19. In no way could Dahl et. al.'s teaching of inlets 55, for mixing control fluid with quenching liquid, teach or suggest Applicant's arrangement of two distinct sets of purging gas supply ports as set forth in claim 1. In particular, in no way could Dahl et. al. teach or suggest Applicant's ports 56 which jet gas outwardly from the valve element to protect the facing valving surfaces. It was understood from the interview that the Examiner agreed with this reasoning. Agreement was reached that the Dahl et. al. disclosure is deficient in this regard.

Both rejections set out in the December 21<sup>st</sup> Action rely upon Dahl et. al. Hence, given the Examiner's agreement that Dahl et. al. is deficient in disclosing Applicant's recited first and second sets of purge gas supply ports, each rejection must fail. Hence, withdrawal of each courteously is solicited.

In view of the foregoing amendments and Remarks, it courteously is urged that all of the remaining claims are allowable, and that this application is in condition for allowance. Favorable action in this regard earnestly is solicited.

If any other fees under 37 C.F.R. §§1.16 or 1.17 are due in connection with this filing, please charge the fees to Deposit Account No. 02-4300; Order No. **033082 M 297**. If an extension of time under 37 C.F.R. § 1.136 is necessary that is not accounted for in the papers filed herewith, such an extension is requested. The extension fee should be charged to Deposit Account No. 02-4300; Order No. **033082 M 297**.

Respectfully submitted,  
SMITH, GAMBRELL & RUSSELL, LLP

/Michael A. Makuch/

By: \_\_\_\_\_  
Michael A. Makuch, Reg. No. 32,263  
1130 Connecticut Avenue, NW - Suite 1130  
Washington, D.C. 20036  
Telephone: (202) 263-4300  
Facsimile: (202) 263-4329

Dated: June 17, 2011